

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
6 May 2005 (06.05.2005)

PCT

(10) International Publication Number  
WO 2005/040381 A1

(51) International Patent Classification<sup>7</sup>: C12N 15/52,  
15/52, 9/10, A01H 1/00, 5/00, A23L 1/0522

(21) International Application Number:  
PCT/AU2004/001517

(22) International Filing Date: 27 October 2004 (27.10.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
60/515,102 27 October 2003 (27.10.2003) US

(71) Applicant (for all designated States except US): COM-  
MONWEALTH SCIENTIFIC AND INDUSTRIAL  
RESEARCH ORGANISATION [AU/AU]; Limestone  
Avenue, Campbell, ACT 2612 (AU).

(72) Inventors; and

(75) Inventors/Applicants (for US only): LI, Zhongyi

[CN/AU]; 51 Campaspe Circuit, Kaleen, ACT 2617 (AU).  
MORELL, Matthew, Kennedy [AU/AU]; 13 Wolgal  
Place, Aranda, ACT 2614 (AU). RAHMAN, Sadequr  
[AU/AU]; 36 Temperley Street, Nicholls, ACT 2913 (AU).

(74) Agent: A.P.T. PATENT AND TRADE MARK ATTOR-  
NEYS; PO Box 222, Mitcham, S.A. 5062 (AU).

(81) Designated States (unless otherwise indicated, for every  
kind of national protection available): AE, AG, AL, AM,  
AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,  
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,  
GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,  
KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,  
MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG,  
PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM,  
TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM,  
ZW.

(84) Designated States (unless otherwise indicated, for every  
kind of regional protection available): ARIPO (BW, GH,

[Continued on next page]

(54) Title: RICE AND PRODUCTS THEREOF HAVING STARCH WITH AN INCREASED PROPORTION OF AMYLOSE

1 GCCACCGACA TCCGCCGCAA TGCTGTGTCT CACCTCCTCT TCCTCCTCCG CGCCCGCTCC  
61 GCTCCTTCCC TCTCTCGCTG ATCGACCGAG CCCGGGAATC GCGGGCGGGG GTGGCAATGT  
121 TCGCTTGAGC GTGGTTTCTT CGCCGCGCCG GTCTGTGGCT GGAAAGGTCA AGACCAATTT  
181 CTCAGTTCCT GCGACTGCGC GAAAGAACAA AACCATGGTG ACTGTGTGTG AGGAGGTCTGA  
241 CCACTCTCCT ATATATGATC TGGACCTTAA GTTGGAGGAA TTCAAGGATC ACTTCAACTA  
301 TAGGATAAAA AGATACCTCG ACCAGAAATG CCTGATTTGA AAACATGAGG GGGGCTTTGA  
361 AGAATTTTCT AAAGGCTATT TGAAGTTTGG GATTAAATCA GTTGATGGTG CCACAATATA  
421 TCGTGAATGG GCGCTGCTG CACAAGAGC ACAGCTCATT GGTGAGTTCA ATAACCTGAA  
481 TGGTCAAAA CACAAGATGG AGAAGGATAA ATTTGGCATT TGTCAATCA AGATTTCACA  
541 TGTCAATGGG AAGCTTGCCA TCCCTCACAA TTCCAAGGTT AAATTTCTGT TTAGGCTAGG  
601 GGGTGGAGCA TGGGTTGATC GTATTCCCGC ATGGATTCTG TATGCAACTT TTGATGGCTC  
661 TAAATTTTGA GCTCCATATG ATGGGTGACA CTGGGATCCT CCAGCTCTGT AAAGGTACGT  
721 GTTTAAGCAT CCTCGACCTC CAAAACCTGA TGCTCCACGC ATCTATGAGG CTCATGTGGG  
781 GATGATGGT GAAGAGCCAG AAGTAAGCAC ATACAGAGAA TTTCAGACA ATGTGTATCC  
841 ACGCATACGG CCAATTAAC TCAACACAGT TCAGTTAATG GCAATCATGG AACATTCCTA  
901 CTATGCTTCT TTTGGGTATC ACGTGACAAA TTTTTCGCA GTACAGAGCA GATCAGGAAC  
961 ACCAGAGGAT GTGAAATATC TTGTTGACAA GGCACATAGT TTAGGATTAC GAGTTCTGAT  
1021 GGATGTGTCT CATAGCCATG CGAGTAATAA TGTGACCGAT GGTCTAAATG GCTATGACGT  
1081 TGGACAAAAC ACTCATGAGT CTTATTTTCA TACAGGAGAT AGGGGTCTAC ATAACTCTG  
1141 GGATAGTCTT CTGTTCACAT ATGCCAATTG GAGGTCCTTA AGATTTCTTC TTTCTAATTT  
1201 GAGATATGG ATGGACGAAT TCATGTTTGA TGCTTCCGA TTTGATGGGG TTACATCAAT  
1261 GCTATACCAT CACCATGGTA TCAATAAGGG ATTTACTGGA AACTACAAGG AGTATTTTCA  
1321 TTTGATATCC GATGTGGATG CAATTTGTTA CATGATGCTC GCAAACCATT TAATGCATAA  
1381 ACTCTTGCCG GAAGCAACTA TTGTGTCTGA AGATGTTTCG GGCATGCCAG TGCTTTGTCTG  
1441 GCCAGTTGAT GAAGGTGGAG TAGGGTTTGA CTTCCGCCCTG GCAATGGCCA TTCTGTATAG  
1501 ATGGATTGAC TACCTGAAGA ACAAAGAGGA CCGCAAAATGG TCAATGAGTG AAATAGTGCA  
1561 AACTTTGACT AACAGGAGAT ATACAGAAAA ATGCATPGCC TATGCCGAGA GCCATGATCA  
1621 GTCCATTGTT GTTGACAAGA CTATAGCAT TCTCTTGATG GACAAGGAAA TGTACACTGG  
1681 CATGTACAGC TTGACGCTG CTTCACTTAC CATCAACCGT GGCATTCGAC TCCAAAAGAT  
1741 GATTCACATC ATTACGATGG CCGTTGGAGG TGATGGCTAC TTAATTTTFA TGGGCAATGA  
1801 GTTTGGCCAT CCAGAAATGA TTGACTTTCC AAGAGAAGGC AACAACTGGA GCTATGATAA  
1861 ATGCAGACGT CAGTGGAGCC TTGTGACAC TGATCACCTT CGATACAAAT ATATGAATGC  
1921 ATTTGATCAA GCAATGAATG CACTCGAGGA GGAATTTTCC TTCTGTGTCAT CATCAAGCA  
1981 GATTTGTAGC GACATGAACG AGAAAGATAA GGTATTTGTC TTTGAACTGT GAGATTTTGT  
2041 TTTTGTTTTC AATTTTCATC CCAACAAAAC TTCAAGGCTT TACAAGTTCG GATGTGACTT  
2101 GCGCGGGAAG TACAGATAG CTTGACCTC TGATGCTTTG GTCTTTGGTG GCCATGGAAG  
2161 AGTTGGCCAT ACTTCACGTC TCCCGAGGGA ATGCCAGGAG ATCCAGAAAC TACCAGAAAC  
2221 AAATTTCAAC AACCGCCCTA ACTCATTTCA AGTCTTTTCC CCGCCCGGTA CCTGTGTGGC  
2281 TTACTATGCG GTTGATGAAG ATCGTGAAGA GCTCAGGAGG GGTGGAGCAG TTGCTTCTGG  
2341 AAAGATTGTT ACAGATATA TCGATGTTGA AGCAACAAGT GGGGAGACTA TCTCTGTTGG  
2401 CTGGAGAGCG TCCGAGAAAG ACGATTGTGG CAAGAAAGGG ATGAAGTTTG TGTTCGGTCT  
2461 TTCTGACGAA GACTGCAAAAT GAAGCATCAG ATTTCTTGAT CAGGAGCAAC TGTGTGGTCC  
2521 CTTGTAACTT GGAGATCCTG GCTTGGCTTG GACTTGGTTFG TGGTTCTTTA GCAAGTGTCTA  
2581 TGTACTTATC TATGATATGA ACTTTATGTA TAGTTCCGCT TAAAGAAAGA ATAGCAGTG  
2641 ATGATGTGGC CTAAACCTCG AGCTGCACAA GCCTAATGTA AAAATAAGT TTCAGGCTTT  
2701 CATCCAGAAAT AAAACAGCTG TFCATTTTACC ATCTCAAAA

(57) Abstract: Rice having reduced levels  
of starch branching enzymes produce grain  
having a high relative amylose content in the  
endosperm. The rice grain of this invention can  
be of a non-shrunken phenotype despite a lesion  
in the amylopectin synthesis pathway and may  
be transgenic or nontransgenic.

WO 2005/040381 A1



GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

**Declaration under Rule 4.17:**

— *of inventorship (Rule 4.17(iv)) for US only*

**Published:**

— *with international search report*

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*